What is claimed is:

1. An etching apparatus using a neutral beam comprising:

an ion source for extracting and accelerating an ion beam having a predetermined polarity;

a grid positioned at the rear of the ion source and having a plurality of grid holes through which the ion beam passes;

a reflector closely attached to the grid and having a plurality of reflector holes corresponding to the grid holes in the grid, the reflector for reflecting the ion beam passed through the grid holes in the reflector holes and neutralizing the ion beam into a neutral beam; and

a stage for placing a substrate to be etched in a path of the neutral beam.

2 The etching apparatus of claim 1, further comprising a retarding grid installed between the reflector and the stage.

3. The etching apparatus of claim 1, wherein the diameter of the reflector holes is equal to or greater than the diameter of the grid holes.

4. The etching apparatus of claim 1, wherein the grid has a cylindrical shape and a protrusion at the rear edge thereof, and the reflector has a cylindrical shape and a protrusion, which is inserted into the protrusion of the grid, at the front edge thereof.

5. The etching apparatus of claim 4, wherein the reflector holes are slanted at a predetermined angle with respect to the straight direction of the ion beam so that the ion beam passing through the grid holes and going straight is reflected in the reflector holes.

6. The etching apparatus of claim 5, wherein the reflector holes are slanted at a predetermined angle with respect to the center line of the reflector in the reflector.

7 The etching apparatus of claim 5, wherein the reflector holes are parallel with respect to the center line of the reflector in the reflector and the height of

the protrusion of the reflector is slanted at a predetermined angle along the outer circumference of the reflector.

8. The etching apparatus of claim 1, wherein the ion source is an inductively coupled plasma (ICP) source.

9. The etching apparatus of claim 1, wherein the reflector is formed of one of a semiconductor substrate, a silicon dioxide, and a metal substrate.

10 10 The etching apparatus of claim 1, wherein the ion beam is incident on the surfaces of the reflector holes in the reflector at an angle of incidence within a range of 5 – 15°.